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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/923,480	08/06/2001	Sang-Geun Kim	AB-878-1D US	2190

7590 10/08/2003

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EXAMINER

STONER, KILEY SHAWN

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 10/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/923,480	KIM ET AL.	
	Examiner	Art Unit	
	Kiley Stoner	1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-16 and 21-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21-23 is/are allowed.
- 6) ☒ Claim(s) 12 and 13 is/are rejected.
- 7) ☒ Claim(s) 14-16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/406,916.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>8/6/01</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claim 12 is rejected under 35 U.S.C. 102(a) as being anticipated by Kim et al. (6,223,800 B1). The intended use of the instantly claimed apparatus is noted, however, the intended use does not patentably distinguish said claimed apparatus over the prior art. Kim et al. teaches a semiconductor chip pickup stage onto which a wafer mount frame is loaded (abstract; column 2, lines 33-67; column 3, lines 4-6; column 4, line 59-column 5, line 57); an alignment stage spaced apart from the semiconductor chip pickup stage (abstract; column 2, lines 33-67; column 3, lines 4-6; column 4, line 59-column 5, line 57); a chip transfer unit capable of selecting a semiconductor chip from a wafer mount frame loaded on the semiconductor pickup stage and transferring the semiconductor chip from the semiconductor chip pickup stage to the alignment stage (abstract; column 2, lines 33-67; column 3, lines 4-6 and 39-50; column 4, line 59-column 5, line 57; and column 6, lines 11-37); an inspection unit (column 3, lines 17-32 and column 5, lines 66-67); and a bonding unit configurable to bond a land pattern from the inspection unit to the semiconductor chip from the alignment stage (abstract; Figures 3-5; column 2, lines 33-67; column 3, lines 4-6; column 4, line 59-column 5, line

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57). The area in which the chip is placed by the pickup device is inherently an alignment stage. The camera of Kim et al. is capable of being configured to inspect a status and a position of land patterns on a mount tape during movement of the mount tape for bonding.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 12 is rejected under 35 U.S.C. 102(b) as being anticipated by Jin et al. (5,765,277). The intended use of the instantly claimed apparatus is noted, however, the intended use does not patentably distinguish said claimed apparatus over the prior art. Jin et al. teaches a semiconductor chip pickup stage onto which a wafer mount frame is loaded (abstract; Figures 4 and 5; column 2, lines 1-25; column 3, line 39-column 4, line 18; column 4, lines 32-45); an alignment stage spaced apart from the semiconductor chip pickup stage (abstract; Figures 4 and 5; column 2, lines 1-25; column 3, line 39-column 4, line 18; column 4, lines 32-45); a chip transfer unit capable of selecting a semiconductor chip from a wafer mount frame loaded on the semiconductor pickup stage and transferring the semiconductor chip from the semiconductor chip pickup stage to the alignment stage (abstract; Figures 4 and 5; column 2, lines 1-25; column 3, line 39-column 4, line 18; column 4, lines 32-45); an inspection unit (abstract; Figures 4 and 5; column 2, lines 1-25; column 3, line 39-column 4, line 18; column 4, lines 32-45); and a bonding unit configurable to bond a land pattern from the inspection unit to the semiconductor chip from the alignment stage (abstract; Figures 4 and 5; column 2, lines

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1-25; column 3, line 39-column 4, line 18; column 4, lines 32-45). The area in which the chip is placed by the pickup device is inherently an alignment stage. The camera of Jin et al. is capable of being configured to inspect a status and a position of land patterns on a mount tape during movement of the mount tape for bonding.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. (6,223,800 B1) or Jin et al. (5,765,277) as applied to claim 12, further in view of Kim (5,838,061). Kim et al. (6,223,800 B1) and Jin et al. teach all of the limitations of the claim except the inspection unit comprises a charge coupled device (CCD) camera.

Kim (5,838,061) teaches using a charge coupled device (CCD) camera in die bonding (column 4, lines 1-19). At the time of the invention it would have been obvious to one of ordinary skill in the art to substitute the charge coupled device camera of Kim (5,838,061) for the die bonding camera of Kim et al. (6,223,800 B1) or Jin et al. in order to digitally capture images of the bonding operation.

Allowable Subject Matter

Claims 14-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 21-23 are allowed.

The following is an examiner's statement of reasons for allowance: The prior art of record does not teach or suggest either alone or in combination a die bonding apparatus as recited by claim 14, particularly the linear reciprocating unit; the semiconductor chip adsorption unit coupled with the linear reciprocating unit and reciprocating along the path between the semiconductor chip pickup stage and the alignment stage; and the semiconductor chip tray disposed along the path of the semiconductor chip adsorption unit, the semiconductor chip tray have capacity to receive at least one defective semiconductor chip.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

Applicant's arguments filed 9-10-03 have been fully considered but they are not persuasive. The applicant argues that in Kim et al. the camera monitors a nozzle while a lead frame is temporarily fixed, which is not the same as an inspection unit

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configurable to inspect a status and a position of land patterns on a mount tape during movement of the mount tape for bonding as recited in claim 12. The camera of Kim et al. is capable of being configured to inspect a status and a position of land patterns on a mount tape during movement of the mount tape for bonding.

The applicant also argues that in Jin et al. the camera confirms a location of a chip, which is not the same as an inspection unit configurable to inspect a status and a position of land patterns on a mount tape during movement of the mount tape for bonding as recited in claim 12. The camera of Jin et al. is capable of being configured to inspect a status and a position of land patterns on a mount tape during movement of the mount tape for bonding.

The configurable language is still not positively limiting the inspection unit of the instant application.

Conclusion

The prior art of record that is cited as of interest is presented on the form-892.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kiley Stoner whose telephone number is (703) 305-0723. The examiner can normally be reached on Monday-Thursday (7:30 a.m. to 6:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on Monday-Friday. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Kiley Stoner A.U. 1725

Kiley Stoner 10-1-03